

DOCUMENT RESUME

ED 293 084

CS 009 006

AUTHOR Brown, Roger  
TITLE Report of the Chapter 1 Sustained Effects Study.  
Education Consolidation and Improvement Act--Chapter  
1.  
INSTITUTION Columbus Public Schools, OH. Dept. of Evaluation  
Services.  
PUB DATE Jul 87  
NOTE 42p.; For a prior report, see ED 253 577.  
PUB TYPE Reports - Research/Technical (143)  
  
EDRS PRICE MF01/PC02 Plus Postage.  
DESCRIPTORS Achievement Gains; \*Compensatory Education;  
Elementary Education; Longitudinal Studies; Pretests  
Posttests; \*Program Effectiveness; Program  
Evaluation; \*Reading Improvement; \*Reading Programs;  
Reading Research; Reading Skills; Reading Tests;  
\*Remedial Programs; Remedial Reading; Vacations  
\*CLEAR Reading Recovery Program; Columbus Public  
Schools OH; Education Consolidation Improvement Act  
Chapter 1; Sustained Effects Study  
  
IDENTIFIERS

ABSTRACT

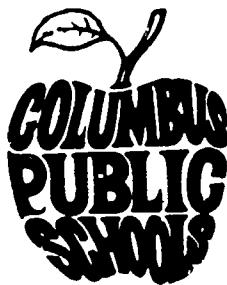
Once every three years, school districts receiving Chapter 1 funds are required to conduct a study of the sustained effects of their Chapter 1 programs. To meet this requirement, the Columbus (Ohio) Public Schools employed a fall-spring test design to determine the degree to which pupils who participated in the Compensatory Language Experiences and Reading (CLEAR) program remained at least at the same level from spring of the treatment year until fall of the next school year. The evaluation sustained effects group consisted of 3,338 elementary and middle school students. The results indicated some decline in all grade levels in reading during the summer months, with grade 6 having the greatest percentage of pupils who maintained their achievement level from the previous spring. The greatest net gains from fall 1985 to fall 1986 were noted for first grade Reading Recovery participants and second, third, and sixth grade CLEAR participants. Pupils from these grade levels substantially improved their fall 1986 achievement levels by spring 1987. (Eight tables and 18 figures are included, and four references are appended.) (SKC)

\*\*\*\*\*  
\* Reproductions supplied by EDRS are the best that can be made \*  
\* from the original document. \*  
\*\*\*\*\*

## Education Consolidation and Improvement Act - Chapter 1

REPORT OF THE CHAPTER 1  
SUSTAINED EFFECTS STUDY

July 1987



"PERMISSION TO REPRODUCE THIS  
MATERIAL HAS BEEN GRANTED BY

Gary Thompson

TO THE EDUCATIONAL RESOURCES  
INFORMATION CENTER (ERIC)."

U S DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

- This document has been reproduced as  
received from the person or organization  
originating it  
 Minor changes have been made to improve  
reproduction quality

- Points of view or opinions stated in this docu-  
ment do not necessarily represent official  
OERI position or policy

Prepared by:

Roger Brown, Professional Specialist

Under the Supervision of:

Richard A. Amorose, Ph.D.

Columbus (Ohio) Public Schools  
Department of Evaluation Services  
Gary Thompson, Ph.D., Director

Education Consolidation and Improvement Act - Chapter 1

REPORT OF THE CHAPTER 1  
SUSTAINED EFFECTS STUDY  
1986-87

ABSTRACT

Reason for the Study: According to ECIA Chapter 1 guidelines school districts receiving Chapter 1 funds are to conduct a study of sustained effects once every three years and use the results in the planning of Chapter 1 programs. Consequently the study addresses three questions. First, what effect did the 1985-86 school year have on the achievement levels of pupils in the CLEAR and Reading Recovery Programs? Second, what was the effect of the time period between April, 1986 and October, 1986 on the achievement levels of pupils in the programs? Third, what effect did the 1986-87 school year and the 1986-87 CLEAR program involvement have on achievement levels of the 1985-86 compensatory program pupils?

Method: The study focused on the extent to which reading achievement effects of Chapter 1 programs were sustained over a period of time as measured by the Comprehensive Tests of Basic Skills (CTB/McGraw-Hill, 1981). The study employed a fall-spring-fall testing design which began with the 1985-86 school year. A subsample of pupils were studied using a fall-spring-fall-spring test design, which provided a longer look at sustained effects. Pupils included in the study met the following criteria. First, the pupils participated in the CLEAR or Reading Recovery program in a district school during the 1985-86 school year. Second, the pupils were in grades one through seven during the 1985-86 school year. Third, each pupil attended at least 80% of the program days between pretest and posttest. Fourth, pupils were promoted to the next grade at the end of the 1985-86 school year. Fifth, complete pretest, posttest, and sustained effects test data were collected on the pupils. A second "sustained effects" test from the April, 1987 districtwide testing was obtained for a subsample of the pupils who met the above criterion.

Results: Of the 4262 pupils eligible for the sustained effects study, 78.2% (3338) met the five criteria and were included in the study, and 70.3% (2989) had a fourth test score. The average pretest-posttest NCE gain for all pupils in the Chapter 1 CLEAR program was 6.5 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 5.3 points, for an average NCE gain of 1.2 from pretest to sustained effects test. Of the 3338 pupils in the study, 36.2% (1134) maintained or exceeded their posttest NCE level on the September, 1986 sustained effects test.

The average pretest-posttest NCE gain for pupils in the subsample who had an April, 1987 test score was 6.7 points. When the sustained effects testing was done in April, 1987, the average NCE score dropped 0.6 points, for an average NCE gain of 6.1 from pretest to April, 1987 sustained effects test. Of the 2989 pupils in the subsample, 47.9% (1432) maintained or exceeded their NCE posttest level on the April, 1987 sustained effects test.

Summary: The sustained effects design included a fall-spring-fall testing schedule with an additional spring test for a subsample of pupils. In the 1985-86 Chapter 1 CLEAR and Reading Recovery programs 3338 pupils were in the evaluation sustained effects group, 2989 in the subsample. Those pupils took each of the 3 or 4 scheduled tests, met the 80 percent attendance criterion of instructional days, and were promoted to the next grade level.

The results of the sustained effects study indicate some decline in all grade levels in reading during the summer months, with sixth grade having the smallest decline. The greatest net gains from Fall 1985 to Fall 1986 were noted for first grade Reading Recovery, and 2nd, 3rd, and 6th grade CLEAR. Pupils from these grade levels substantially improved their Fall 1986 achievement levels by Spring 1987.

REPORT OF THE CHAPTER 1  
SUSTAINED EFFECTS STUDY

July 1987

ECIA Chapter 1 evaluation guidelines require school districts receiving Chapter 1 funds to conduct a study of the sustained effects of Chapter 1 programs. The study is to be conducted once every three years and the results are to be used in the planning of Chapter 1 programs.

In order to examine the extent that the reading achievement effects of Chapter 1 programs were sustained over time, the Columbus Public Schools employed a fall-spring-fall testing design. This design shows the degree to which the pupils who participated in the compensatory programs remained at least at the same level from spring of the treatment year until fall of the next school year. Additionally, test scores from the April 1987 districtwide testing were obtained allowing a fall-spring-fall-spring test design for a subsample of the students. This provided a look at the reading achievement of students approximately one and one-half years after they were first served by Chapter 1 during the 1985-86 school year.

Pupils from the Compensatory Language Experiences and Reading (CLEAR) program and the first grade Reading Recovery program were included in the study. The purpose of the CLEAR program is to provide assistance to underachieving pupils in grades one through eight so they may improve their language and reading skills. The purpose of the Reading Recovery program is to provide early intervention to underachieving first grade pupils who appear unlikely to learn to read successfully without intensive instruction.

This report addresses three questions. First, what effect did the 1985-86 school year have on the achievement levels of pupils in the CLEAR and Reading Recovery Programs? Second, what was the effect of the time period between April, 1986 and October, 1986 on the achievement levels of pupils in the programs? Third, what effect did the 1986-87 school year and 1986-87 CLEAR program involvement have on achievement levels of the 1985-86 compensatory program pupils?

Method

Pupils

The pupils included in the sustained effects study met the following five criteria. First, the pupils participated in the CLEAR or Reading Recovery program in one of the Columbus Public Schools during the 1985-86 school year. Non-public program pupils were not included in the study because of the procedural difficulty of locating these pupils the following school year. Second, the pupils were in grades one through seven during the 1985-86 school year. Third, each pupil attended at least 80% of the program days between pretest and posttest. This meant that each pupil attended at least 108 of the 135 program days. Fourth, pupils were promoted to the next grade at the end of the 1985-86 school year. The sustained effects test was given as part of the pretest procedures for the 1986-87 school year. Thus pupils were given the level of the test specified by the Chapter 1 evaluation design. Pupils who were retained took a lower level of the test than did promoted pupils. A study of the raw scores of retained pupils indicated that the test level was somewhat

low for these pupils and that a "ceiling effect" had occurred. For this reason the scores of retained pupils were dropped from the study. Fifth, complete pretest, posttest, and sustained effects test data were collected on all of the pupils. In addition, a second "sustained effects" test was obtained from the April, 1987 districtwide testing for a subsample of students in the study.

Table 1 provides a description of the effect of applying these five criteria. The first set of figures shows the number of pupils at each grade level in the CLEAR and Reading Recovery programs who met the first three criteria for inclusion in the study. The second set of figures shows the number of these pupils having sustained effects scores. The third set shows the number who met all the criteria and were included in the study. The remaining figures show the subsample of study pupils having an April, 1987 districtwide test who were served by CLEAR the 1986-87 school year and those who were not. An examination of the first two sets of figures reveals that sustained effects scores were collected on 83.7% of all program students eligible for inclusion in the study. A comparison of the first and third sets of figures shows that of all the 1986-87 program pupils eligible for the sustained effects study 78.2% met the five criteria and were included in the study. Furthermore 70.3% had a fourth test score, the April, 1987 districtwide test.

#### Test Instruments

CLEAR and Reading Recovery pupils were administered the Comprehensive Tests of Basic Skills (CTB/McGraw-Hill, 1981). This test series has empirical norms for fall and spring, established October 6-10, 1980, and April 27 to May 1, 1981. The subtest, test level, and form used at each grade level are listed in Table 2.

#### Procedure

In the Fall of 1986, the compensatory education Program Involvement File (PIF) for 1985-86 was used to identify pupils eligible for inclusion in the sustained effects study. (To be eligible the pupil had to meet the first three criteria given in the "Pupils" section of this report.) A printout listing necessary pupil and testing information was produced for each school.

A compensatory education teacher assigned to a school served as the sustained effects liaison person for the building. The printout and the necessary test materials and instructions were sent to the liaison person. The liaison person was responsible for collecting and reporting test data for pupils listed on the printout.

The sustained effects test data reported by the liaison persons were entered into the PIF system. The data were edited, and derived scores (grade equivalent, percentile, standard score, normal curve equivalent) were applied for the pretest, posttest, and sustained effects tests. The file was matched against the 1987 districtwide test file in order to obtain all available test data and then matched to the 1986-87 PIF to determine pupils' subsequent year program involvement. This resulted in a data file for CLEAR and Reading Recovery pupils in the sustained effects study. From this file, normal curve equivalent (NCE) means, standard deviations, and frequency distributions were computed for the pretest, posttest, sustained effects, and districtwide test. Distributions of percentile ranks were established.

Table 1

Number of Pupils Meeting Various Criteria  
for Inclusion in the Sustained Effects  
Study Reported by Program and Grade Level

1985-86 Grade/Treatment	Pupils With Pretest Scores, Posttest Scores, & Met Attendance Criteria		Pupils With Sustained Effects Scores	Pupils Who Were Promoted and Included in the Study	Pupils in the Study With 4-87 Districtwide Test Score		
	1986-87 CLEAR Service	No 86-87 CLEAR Service	Total				
1 CLEAR Recovery	103 141	66 103	55 93	22 5	20 53	42 58	
2 CLEAR	859	717	630	193	385	578	
3 CLEAR	814	698	667	346	245	591	
4 CLEAR	828	709	688	363	279	642	
5 CLEAR	718	609	597	293	241	534	
6 CLEAR	614	508	460	77	337	414	
7 CLEAR	191	161	148	6	124	130	
<b>Total</b>	<b>4268</b>	<b>3571</b>	<b>3338</b>	<b>1305</b>	<b>1684</b>	<b>2989</b>	

ω

Table 2  
Testing Schedule for the Reading  
Sustained Effects Study

1985-86 Treatment Grade	1986 Sustained Test Grade	Pretest (10-85) Test/Level/Form	Posttest (4-86) Test/Level/Form	Sustained Effects Test (9-86) Test/Level/Form	Districtwide Test (4-87) Test/Level/Form
1	2	Total Reading/B/U	Total Reading/C/U	Comprehension/D/U	Comprehension/D/V*
2	3	Comprehension/D/IJ	Comprehension/D/V*	Comprehension/E/U	Comprehension/E/V
3	4	Comprehension/E/U	Comprehension/E/V	Comprehension/F/U	Comprehension/F/V*
4	5	Comprehension/F/U	Comprehension/F/V*	Comprehension/G/U	Comprehension/G/V
5	6	Comprehension/G/U	Comprehension/G/V	Comprehension/G/U	Comprehension/G/V
6	7	Comprehension/G/U	Comprehension/G/V	Comprehension/H/U	Comprehension/H/V*
7	8	Comprehension/H/U	Comprehension/H/V*	Comprehension/H/U	Comprehension/H/V

\*Estimated by administration of abridged form V.

Results

The following is a report by grade level of the reading scores of the 1985-86 CLEAR and Reading Recovery pupils. Figures 1-9 and Tables 3-5 pertain to the 3 measurements of the 3338 sustained effects study pupils. Figure 1a - 9a and Tables 3a - 5a pertain to the subsample of 2989 pupils who had 4 measurements.

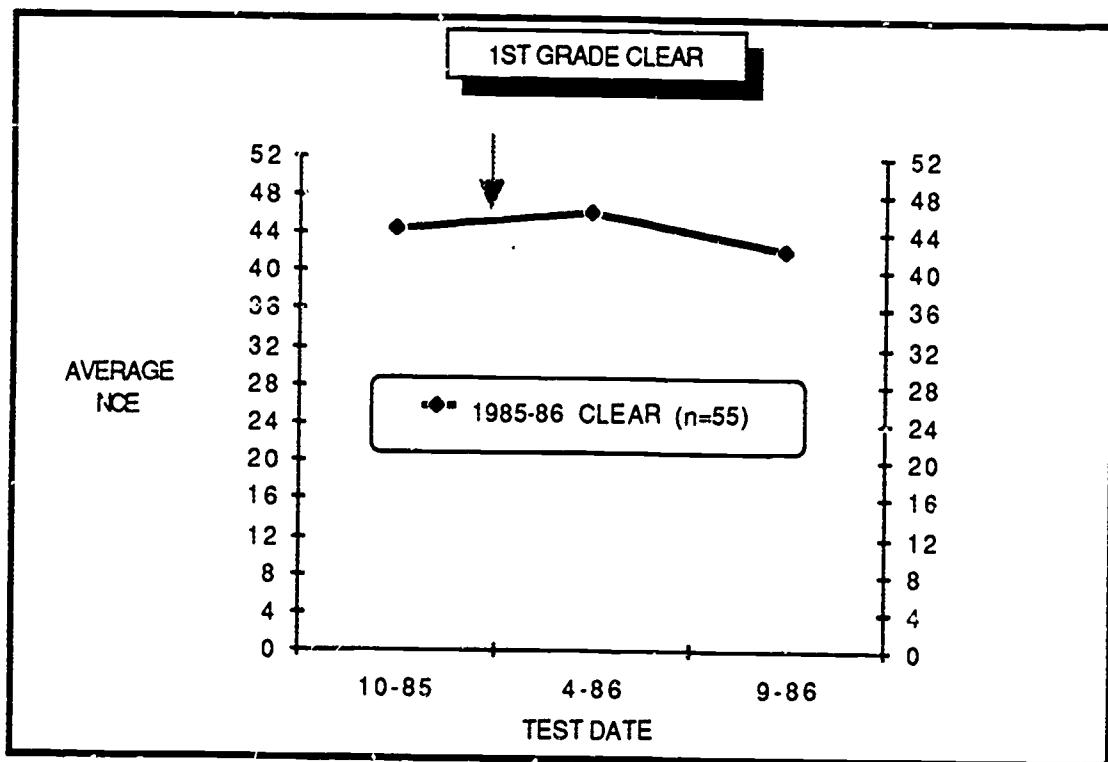
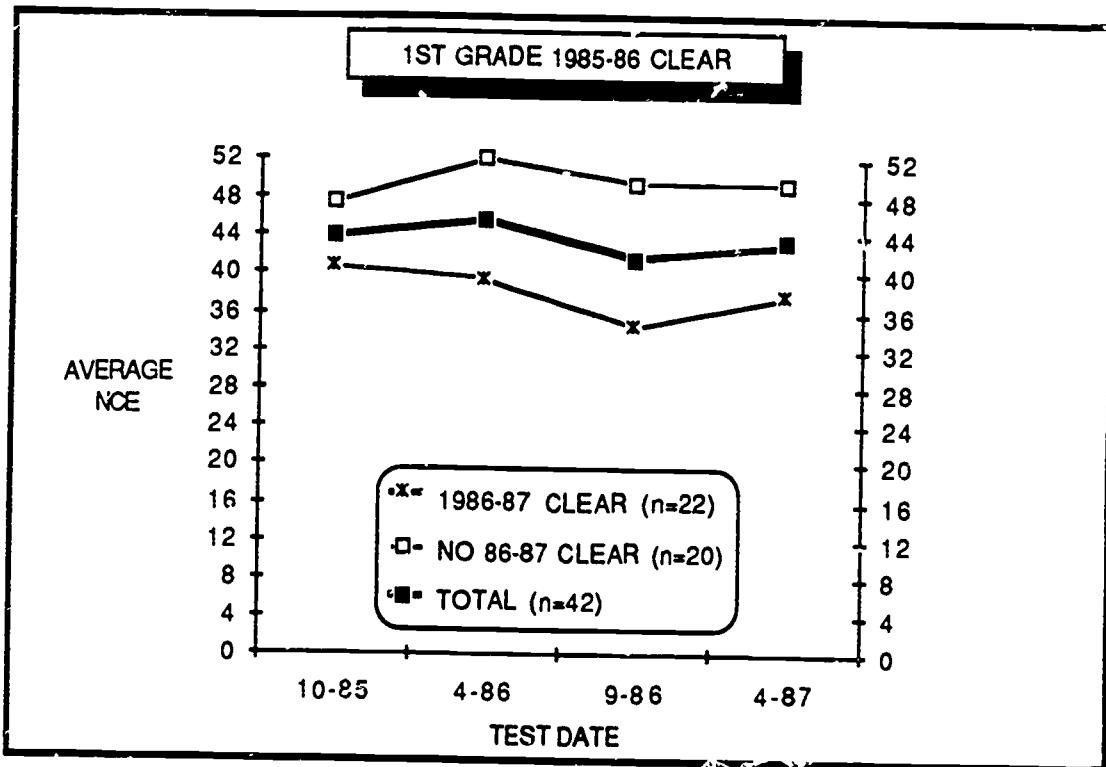


Figure 1. A comparison of the average pretest, posttest, and sustained effects NCE scores for first-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for first-graders in the Chapter 1 CLEAR program was 1.9 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 4.1 points. The average NCE gain from pretest to sustained effects test was -2.2 points. Of the 55 CLEAR first-graders in the study, 40.0% (22 pupils) maintained or exceeded their NCE level on the sustained effects test.

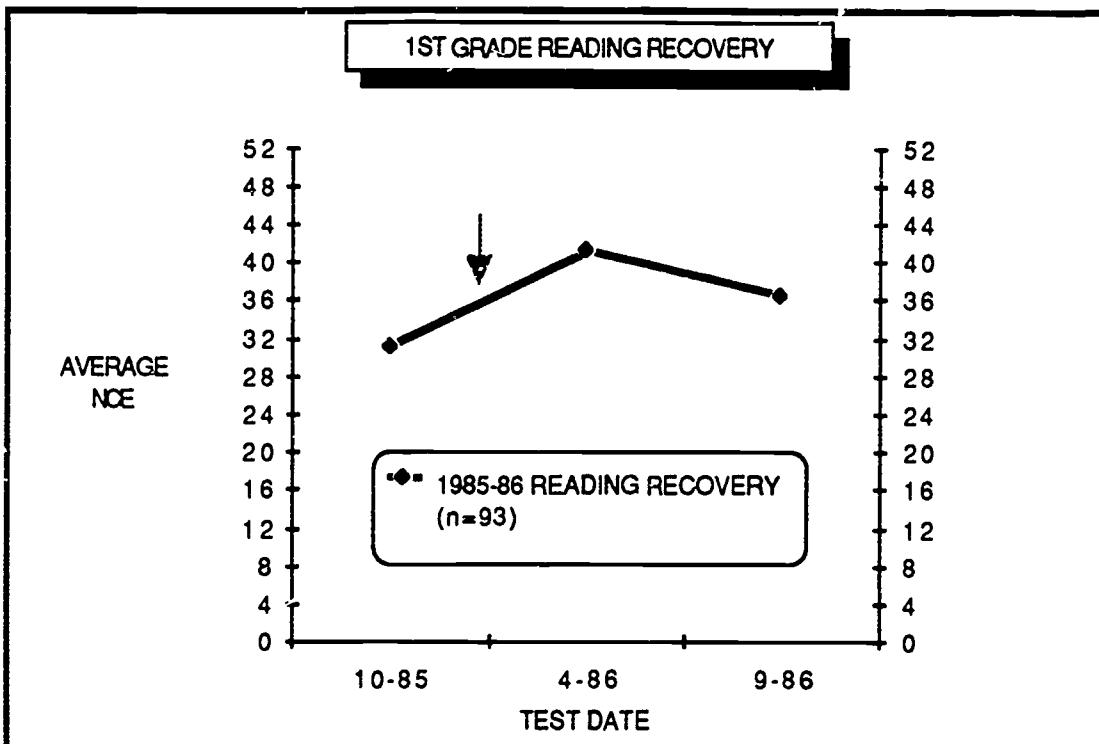
On the pretest 52.7% (29) of the 55 pupils in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 58.2% (32) scored above the 36th percentile and 49.1% (27) scored above on the sustained effects test.



**Figure 1a.** A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for first-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of first-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 1.7 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 2.4 points (3.1 for pupils not receiving 1986-87 CLEAR program service, 1.8 for those served). The average NCE gain from pretest to districtwide test was -0.7 (2.0 for pupils not receiving 1986-87 CLEAR, -3.1 for those served). Of the 42 first-graders in the subsample, 40.5% (17) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 52.4% (22) of the 42 pupils in the subsample scored above the 36th percentile (70.0% [14] of the 20 pupils not receiving 1986-87 CLEAR program service, 36.4% [8] of the 22 served).



**Figure 2.** A comparison of the average pretest, posttest, and sustained effects NCE scores for first-graders in the 1985-86 Chapter 1 Reading Recovery program.

The average pretest-posttest NCE gain for first-graders in Chapter 1 Reading Recovery was 10.0 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 4.7 points. The average NCE gain from pretest to sustained effects test was 5.3 points. Of the 93 Reading Recovery first-graders in the study, 38.7% (36 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 24.7% (23) of the 93 in Chapter 1 Reading Recovery scored above the 36th percentile. On the posttest 50.5% (47) scored above the 36th percentile and 24.7% (23) scored above on the sustained effects test.

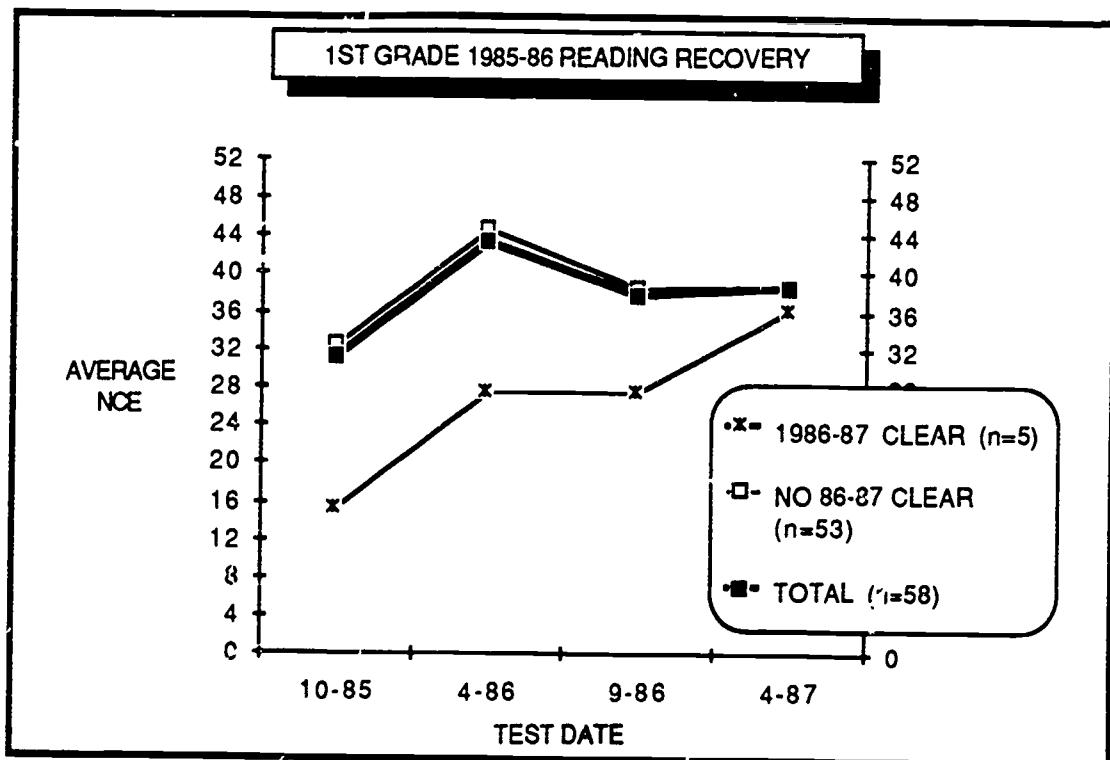
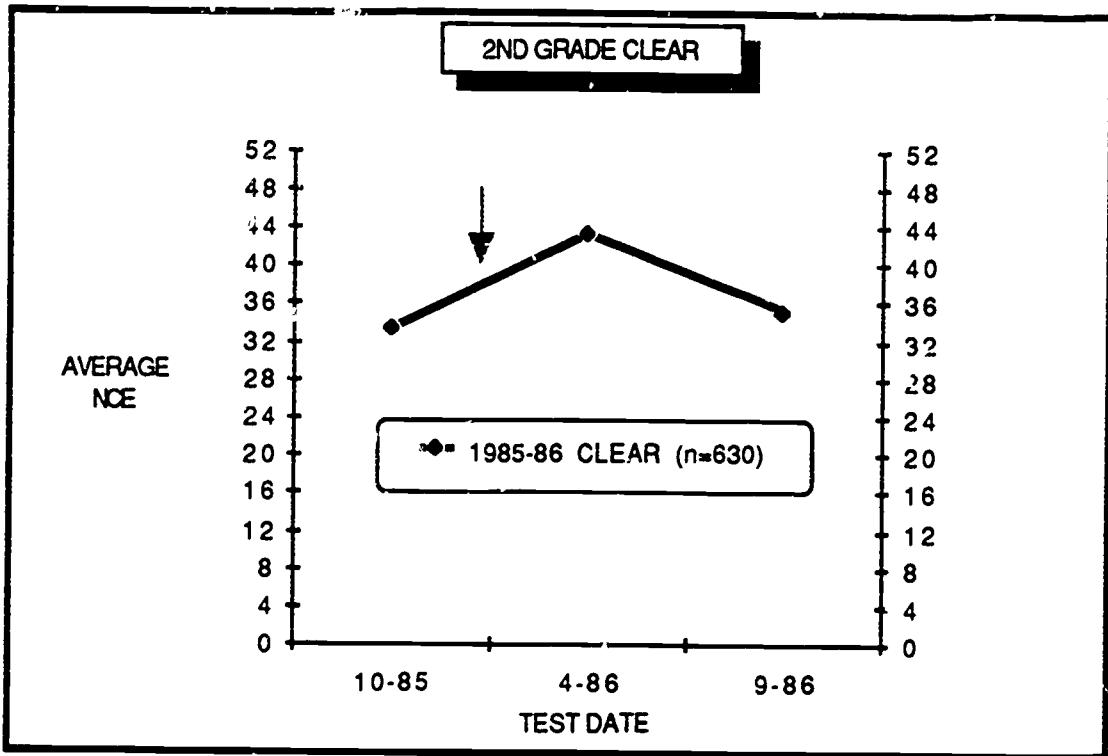


Figure 2a. A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for first-graders in the 1985-86 Chapter 1 Reading Recovery program.

For the subsample of first-graders in 1985-86 Chapter 1 Reading Recovery having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 12.7 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 4.6 points (the 53 pupils not receiving 1986-87 CLEAR dropped 5.9, the 5 pupils served gained 8.8 points). The average NCE gain from pretest to districtwide test was 7.5 (6.2 for pupils not receiving 1986-87 CLEAR, 21.0 for the 5 pupils served). Of the 58 first-graders in the subsample, 43.1% (25) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 44.8% (25) of the 58 pupils in the subsample scored above the 36th percentile (45.3% [24] of the 53 pupils not receiving 1986-87 CLEAR, 40.0% [2] of the 5 served).



**Figure 3.** A comparison of the average pretest, posttest, and sustained effects NCE scores for second-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for second-graders in the Chapter 1 CLEAR program was 9.9 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 8.0 points. The average NCE gain from pretest to sustained effects test was 1.9 points. Of the 630 CLEAR second-graders in the study, 32.4% (204 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 19.2% (121) of the 630 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 46.2% (291) scored above the 36th percentile and 27.6% (174) scored above on the sustained effects test.

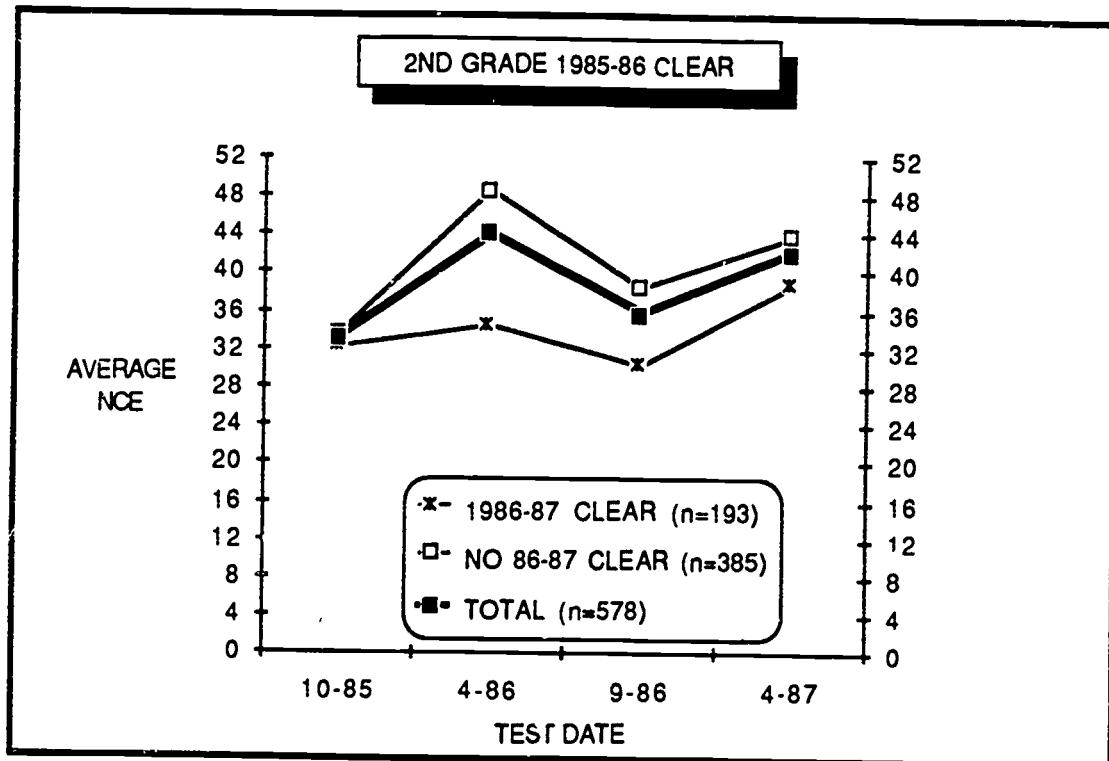
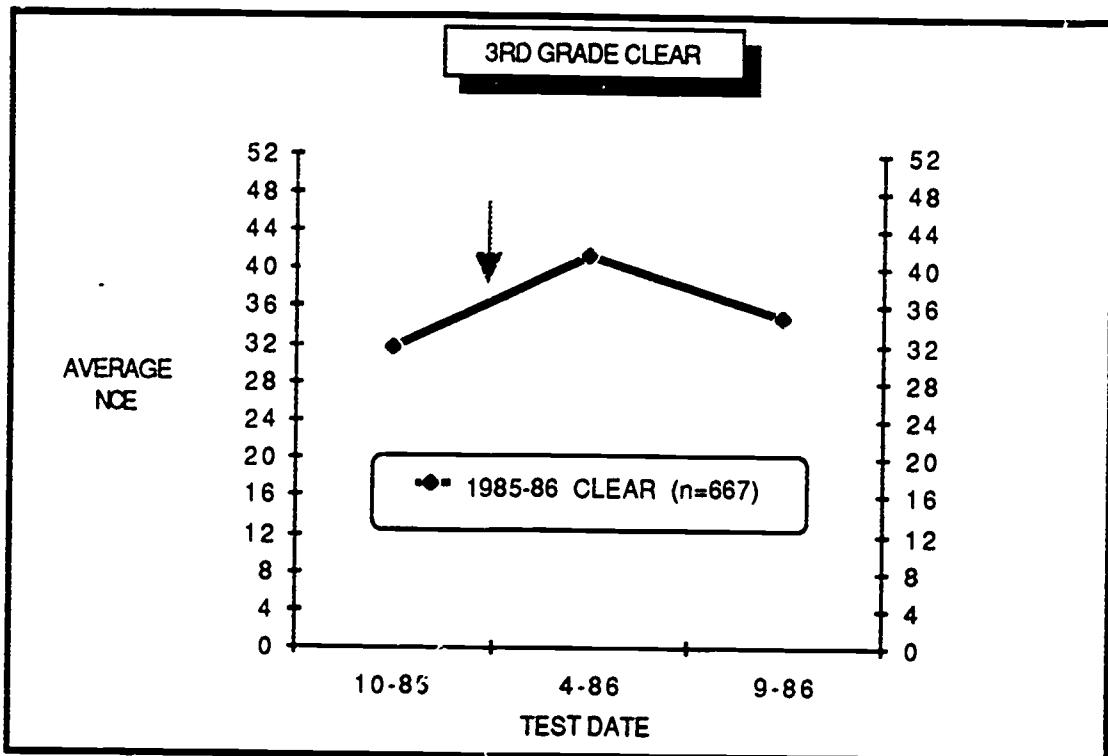


Figure 3a. A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for second-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of second-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 10.7 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 1.8 points (the 385 pupils not receiving 1986-87 CLEAR program service dropped 4.8, the 193 pupils served gained 4.1 points). The average NCE gain from pretest to districtwide test was 8.9 (10.2 for pupils not receiving 1986-87 CLEAR, 6.3 for those served). Of the 578 second-graders in the subsample, 47.8% (276) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 43.1% (249) of the 578 pupils in the subsample scored above the 36th percentile (50.4% [194] of the 385 pupils not receiving 1986-87 CLEAR program service, 28.5% [55] of the 193 served).



**Figure 4.** A comparison of the average pretest, posttest, and sustained effects NCE scores for third-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for third-graders in the Chapter 1 CLEAR program was 9.7 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 6.6 points. The average NCE gain from pretest to sustained effects test was 3.1 points. Of the 667 CLEAR third-graders in the study, 34.5% (230 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 21.6% (144) of the 667 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 40.5% (270) scored above the 36th percentile and 28.6% (191) scored above on the sustained effects test.

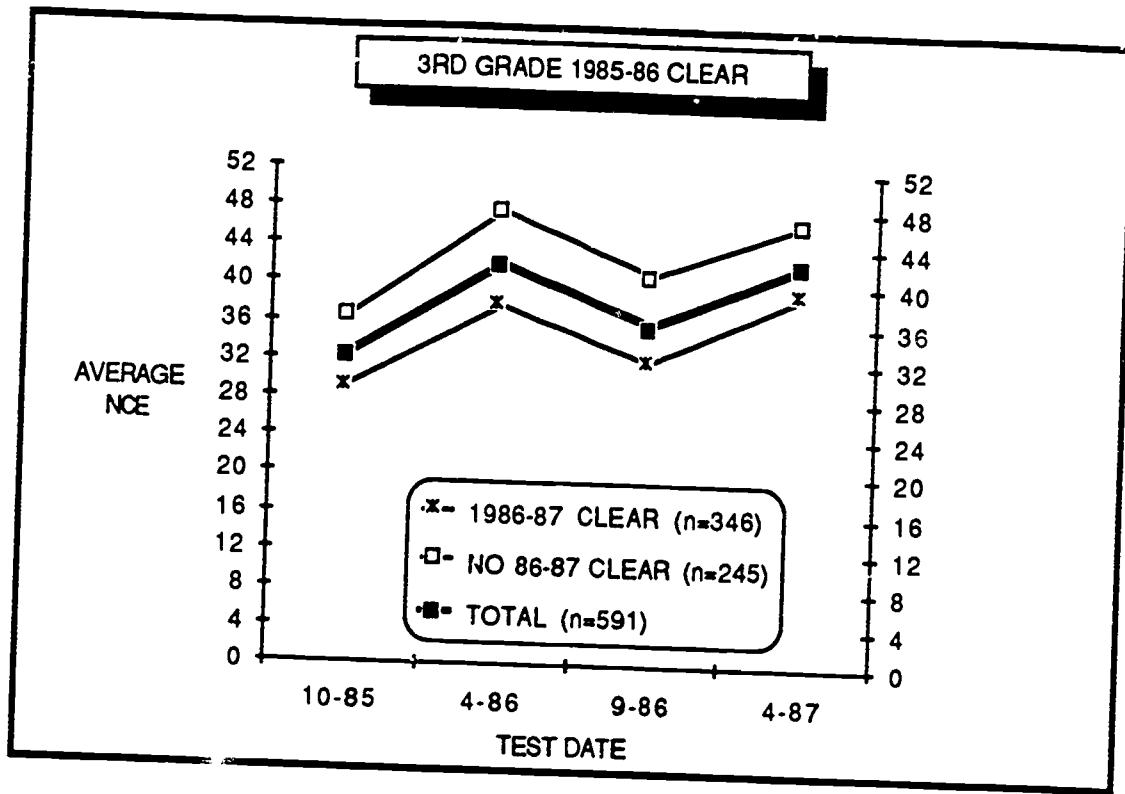
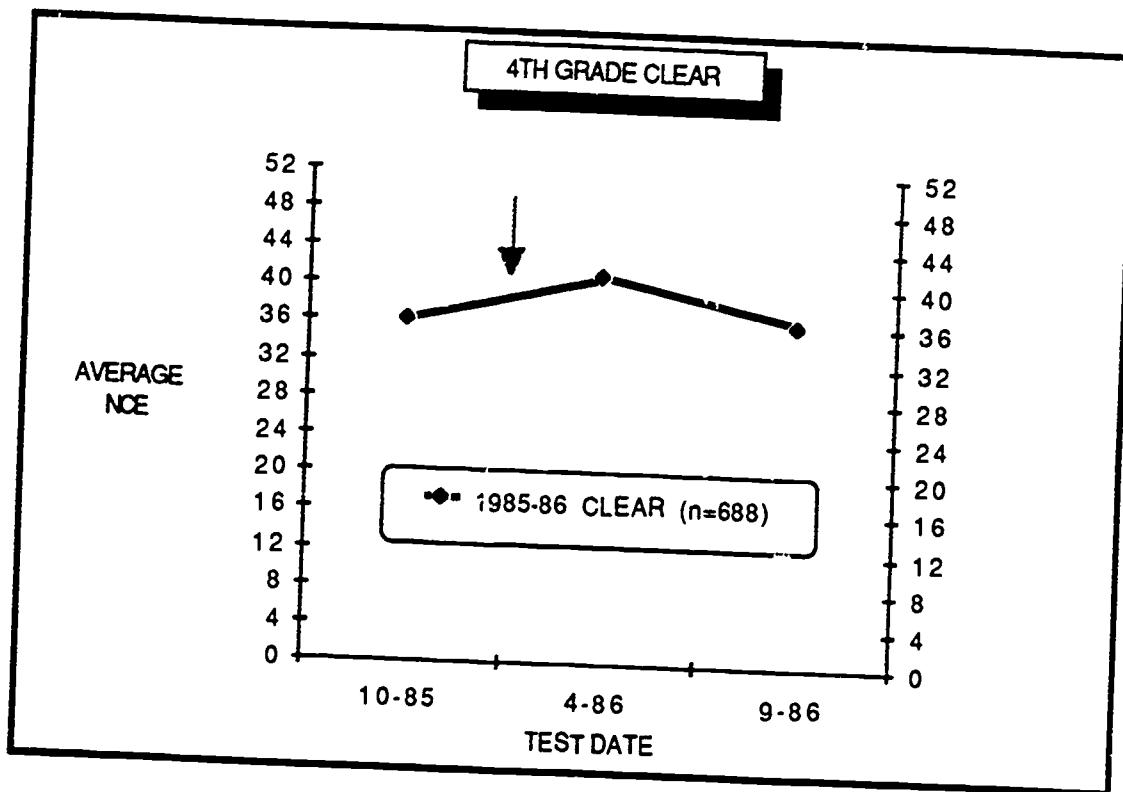


Figure 4a. A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for third-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of third-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 9.8 points. When the districtwide testing was done in April, 1987 the average NCE score was up 0.3 points (the 245 pupils not receiving 1986-87 CLEAR program service dropped 1.0, the 346 pupils served gained 1.3 points). The not receiving 1986-87 CLEAR, 10.0 for those served). Of the 591 third-graders in the subsample, 41.0% (263) maintained or exceeded their posttest NCE level on the districtwide test.

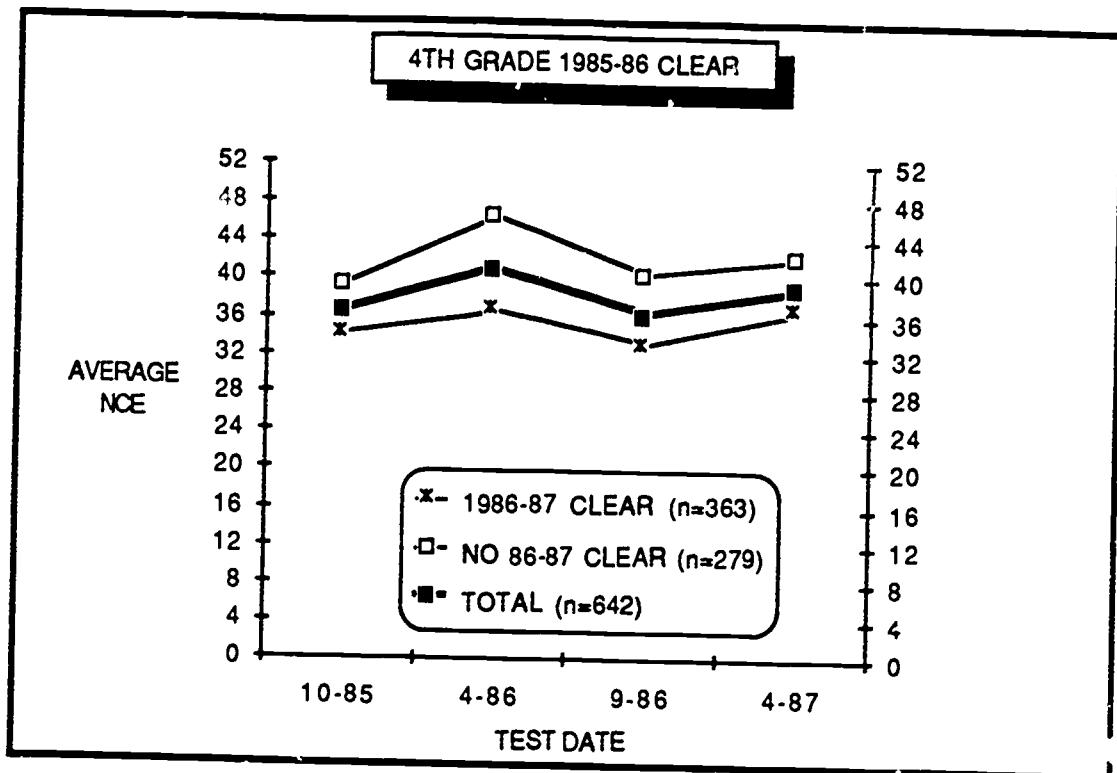
On the districtwide test 46.5% (275) of the 591 pupils in the subsample scored above the 36th percentile (63.7% [156] of the 245 pupils not receiving 1986-87 CLEAR program service, 34.4% [119] of the 346 served).



**Figure 5.** A comparison of the average pretest, posttest, and sustained effects NCE scores for fourth-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for fourth-graders in the Chapter 1 CLEAR program was 4.7 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 4.7 points. The average NCE gain from pretest to sustained effects test was 0.0 points. Of the 688 CLEAR fourth-graders in the study, 34.6% (238 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 31.4% (216) of the 688 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 40.0% (275) scored above the 36th percentile and 28.3% (195) scored above on the sustained effects test.



**Figure 5a.** A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for fourth-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of fourth-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 4.5 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 1.9 points (the 279 pupils not receiving 1986-87 CLEAR program service dropped 4.1, the 363 pupils served dropped 0.2 points). The average NCE gain from pretest to districtwide test was 2.7 (3.1 for pupils not receiving 1986-87 CLEAR, 2.3 for those served). Of the 642 fourth-graders in the subsample, 41.0% (263) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 31.2% (200) of the 642 pupils in the subsample scored above the 36th percentile (43.0% [120] of the 279 pupils not receiving 1986-87 CLEAR program service, 22.0% [80] of the 363 served).

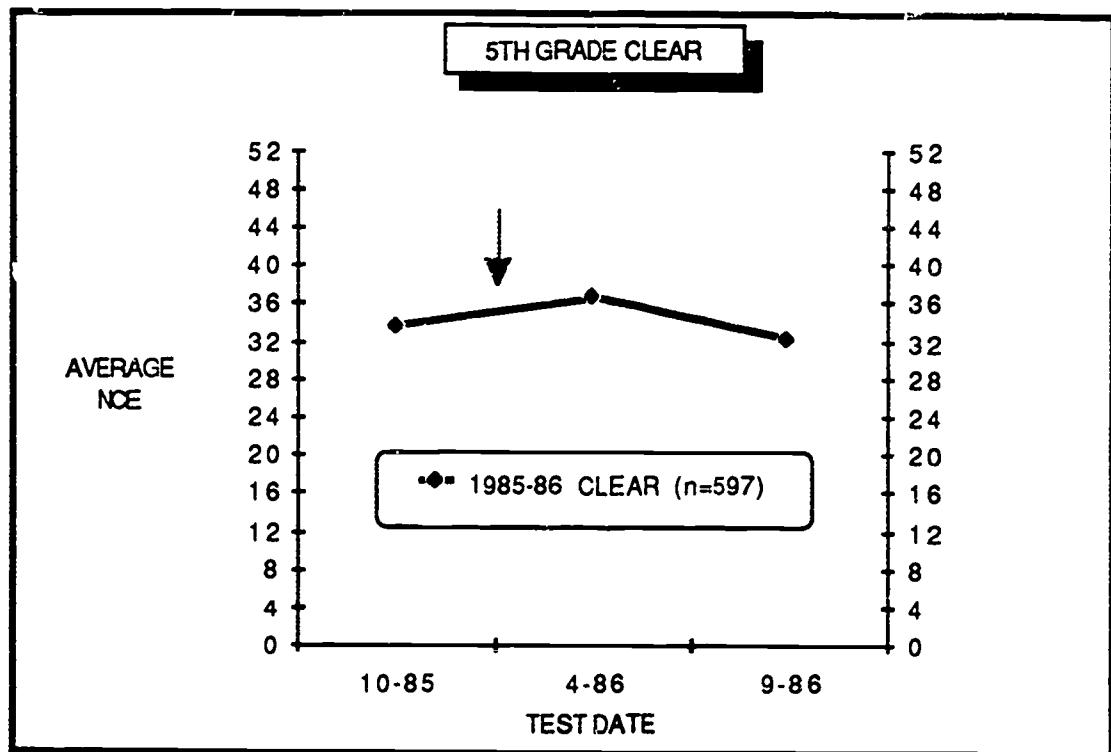
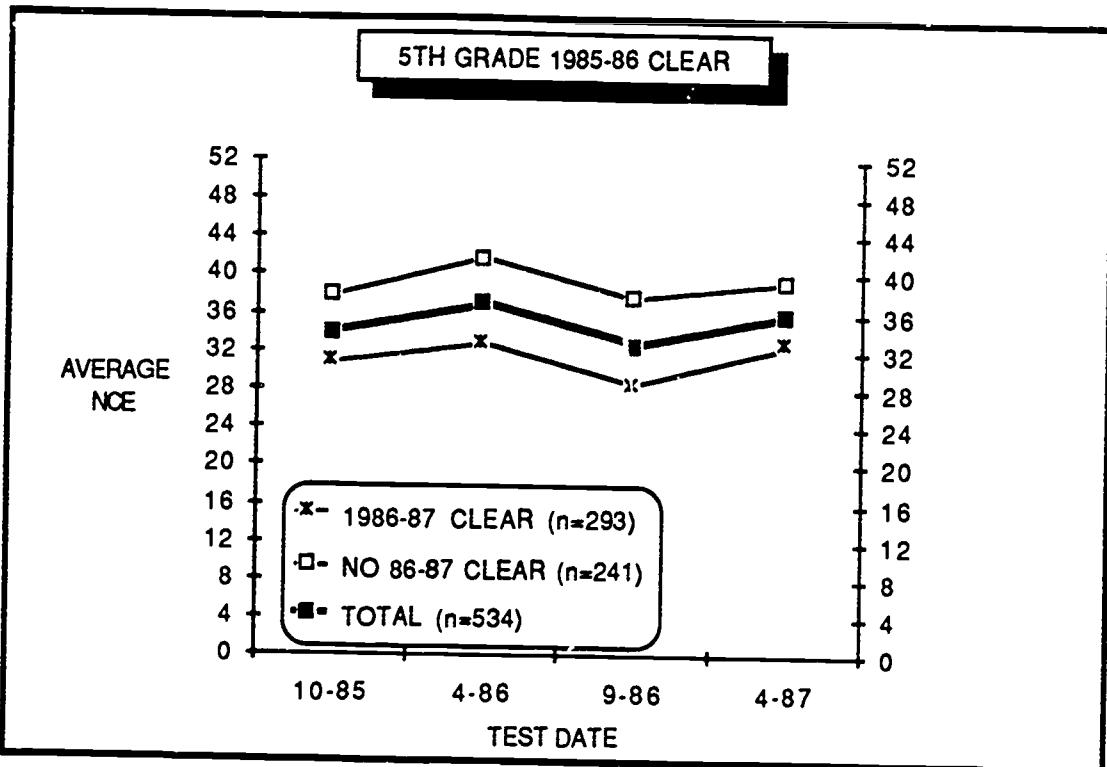


Figure 6. A comparison of the average pretest, posttest, and sustained effects NCE scores for fifth-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for fifth-graders in the Chapter 1 CLEAR program was 3.0 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 4.5 points. The average NCE gain from pretest to sustained effects test was -1.5 points. Of the 597 CLEAR fifth-graders in the study, 35.8% (214 pupils) maintained or exceeded their NCE level on the sustained effects test.

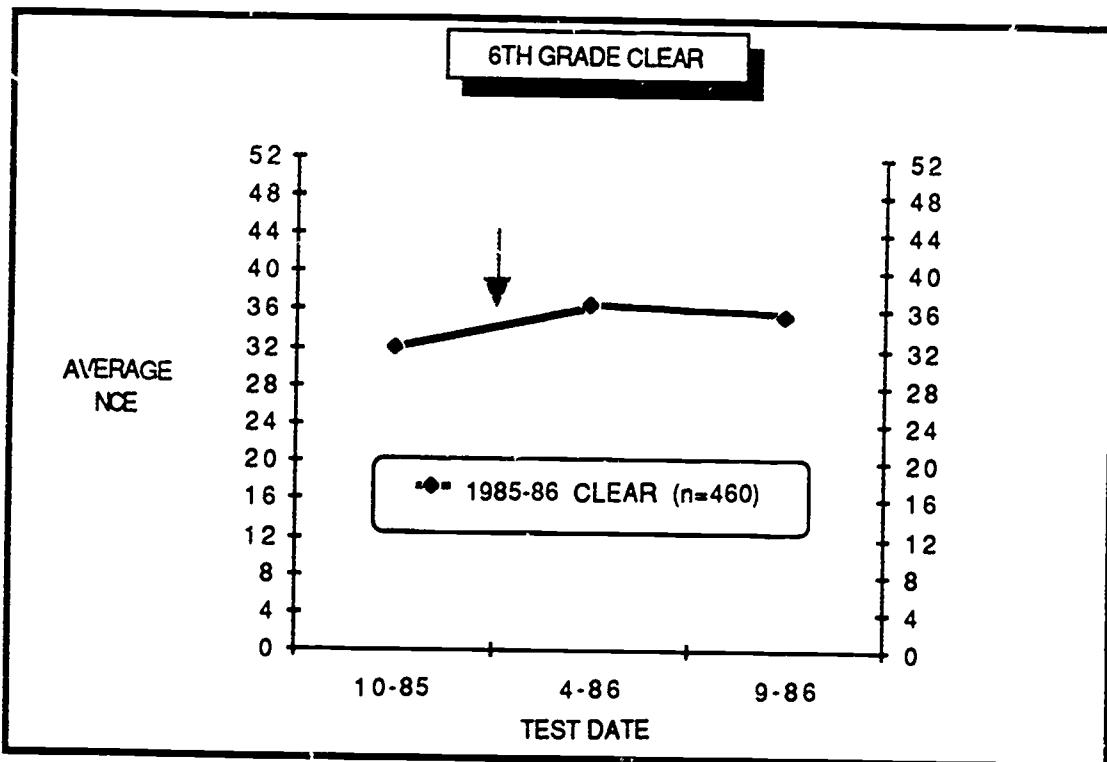
On the pretest 21.4% (128) of the 597 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 21.1% (126) scored above the 36th percentile and 16.6% (99) scored above on the sustained effects test.



**Figure 6a.** A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for fifth-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of fifth-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 3.0 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 1.2 points (the 241 pupils not receiving 1986-87 CLEAR program service dropped 2.4, the 293 pupils served dropped 0.1 points). The average NCE gain from pretest to districtwide test was 1.9 (1.7 for pupils not receiving 1986-87 CLEAR, 2.0 for those served). Of the 534 fifth-graders in the subsample, 41.6% (222) maintained or exceeded their posttest NCE level on the districtwide test.

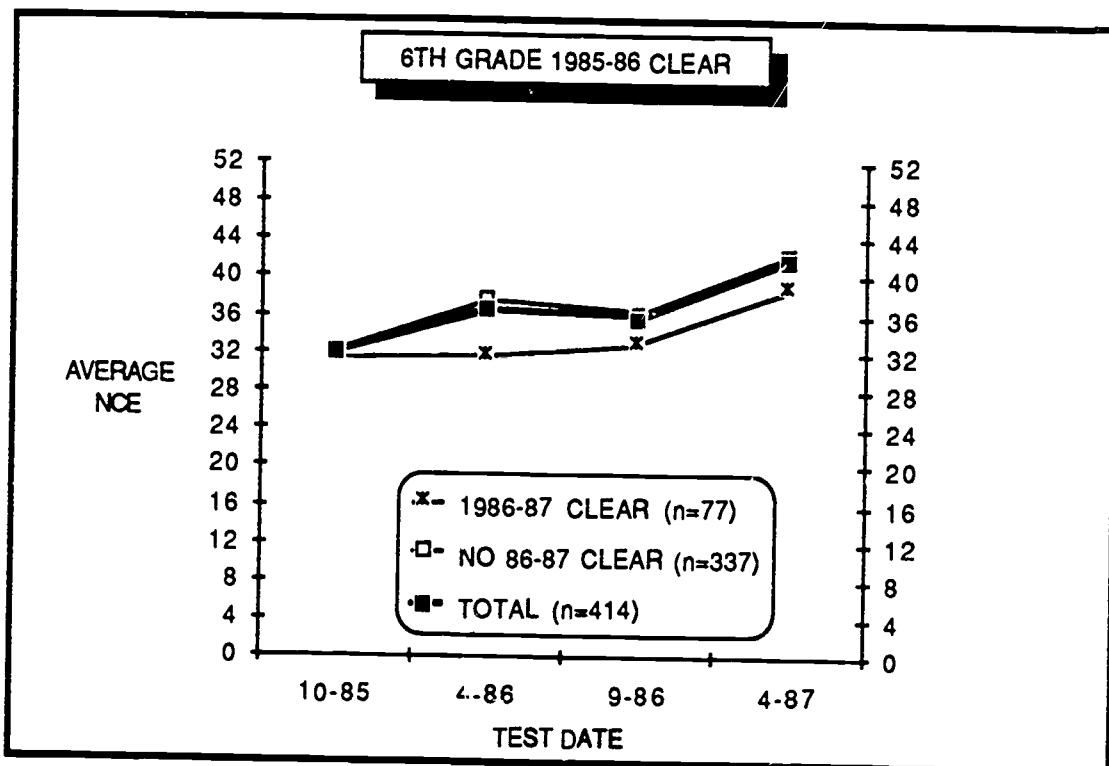
On the districtwide test 26.4% (141) of the 534 pupils in the subsample scored above the 36th percentile (39.4% [95] of the 241 pupils not receiving 1986-87 CLEAR program service, 15.7% [46] of the 293 served).



**Figure 7.** A comparison of the average pretest, posttest, and sustained effects NCE scores for sixth-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for sixth-graders in the Chapter 1 CLEAR program was 4.4 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 1.0 points. The average NCE gain from pretest to sustained effects test was 3.4 points. Of the 460 CLEAR sixth-graders in the study, 49.8% (229 pupils) maintained or exceeded their NCE level on the sustained effects test.

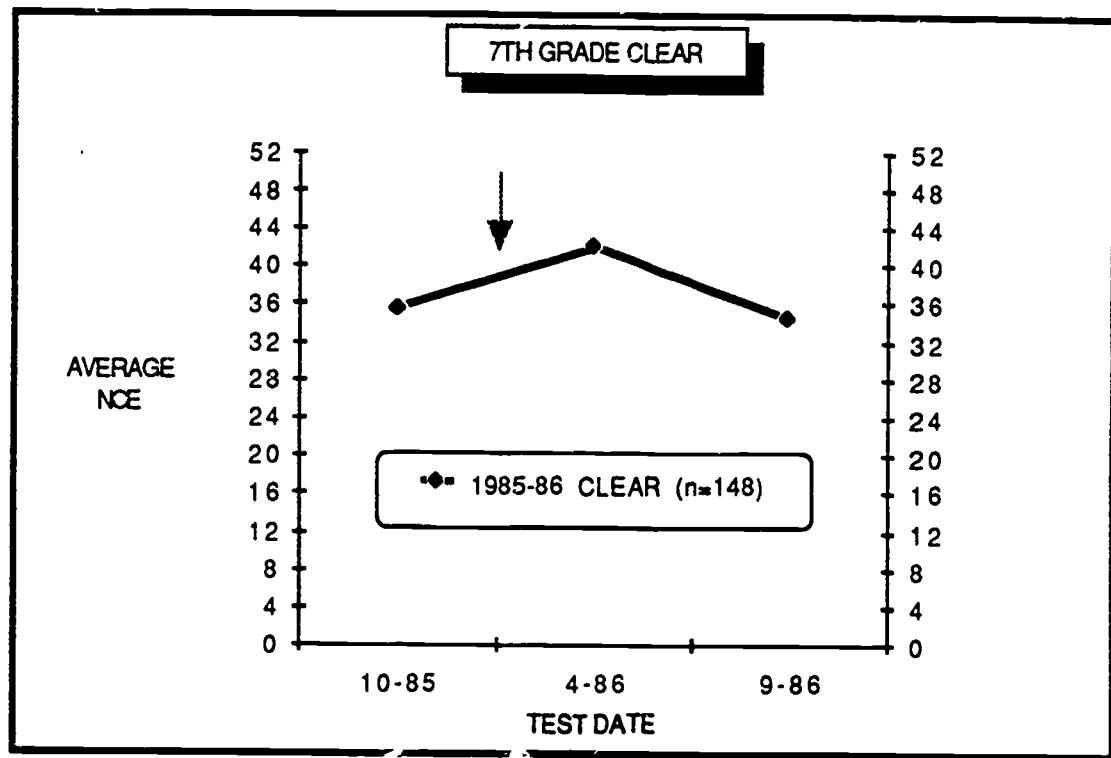
On the pretest 14.8% (68) of the 460 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 20.4% (94) scored above the 36th percentile and 23.0% (106) scored above on the sustained effects test.



**Figure 7a.** A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for sixth-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of sixth-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 4.5 points. When the districtwide testing was done in April, 1987 the average NCE score rose an additional 5.3 points (the 337 pupils not receiving 1986-87 CLEAR program service gained 4.9, the 77 pupils served gained 7.2 points). The average NCE gain from pretest to districtwide test was 9.8 (10.3 for pupils not receiving 1986-87 CLEAR, 7.5 for those served). Of the 414 sixth-graders in the subsample, 71.0% (294) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 45.9% (190) of the 414 pupils in the subsample scored above the 36th percentile (49.0% [165] of the 337 pupils not receiving 1986-87 CLEAR program service, 32.5% [25] of the 77 served).



**Figure 8.** A comparison of the average pretest, posttest, and sustained effects NCE scores for seventh-graders in the 1985-86 Chapter 1 CLEAR program.

The average pretest-posttest NCE gain for seventh-graders in the Chapter 1 CLEAR program was 6.4 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 7.6 points. The average NCE gain from pretest to sustained effects test was -1.2 points. Of the 148 CLEAR seventh-graders in the study, 25.0% (37 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 25.7% (38) of the 148 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 45.9% (68) scored above the 36th percentile and 25.0% (37) scored above on the sustained effects test.

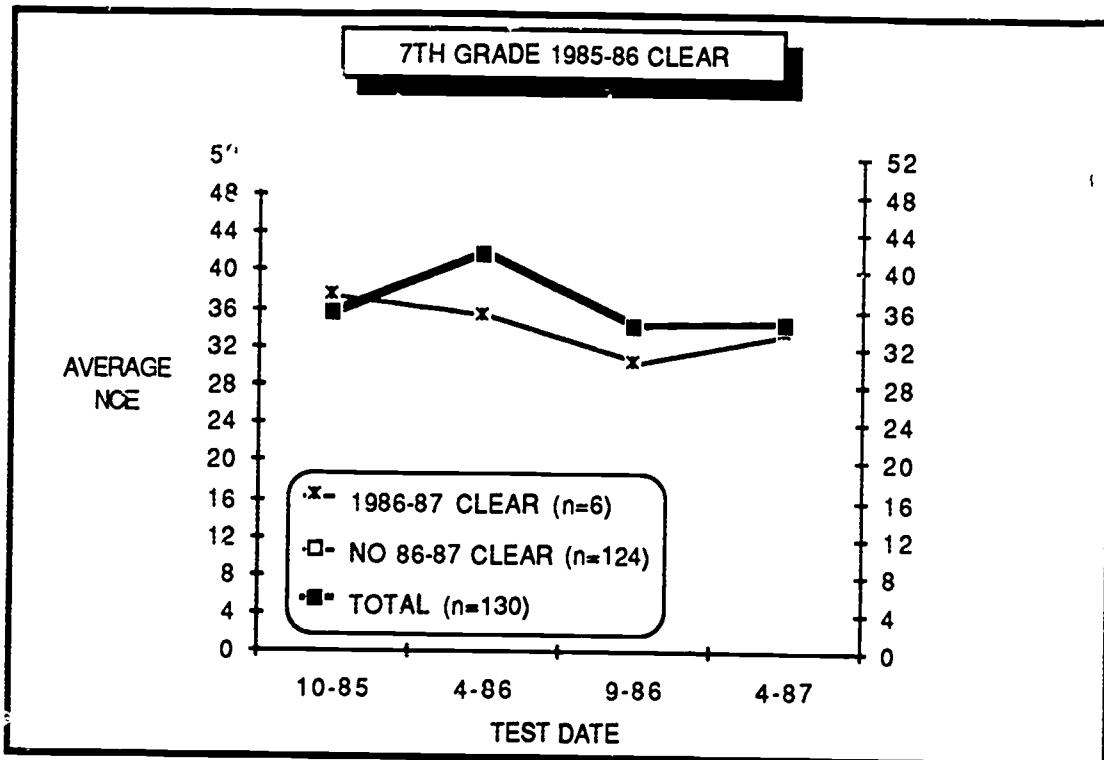
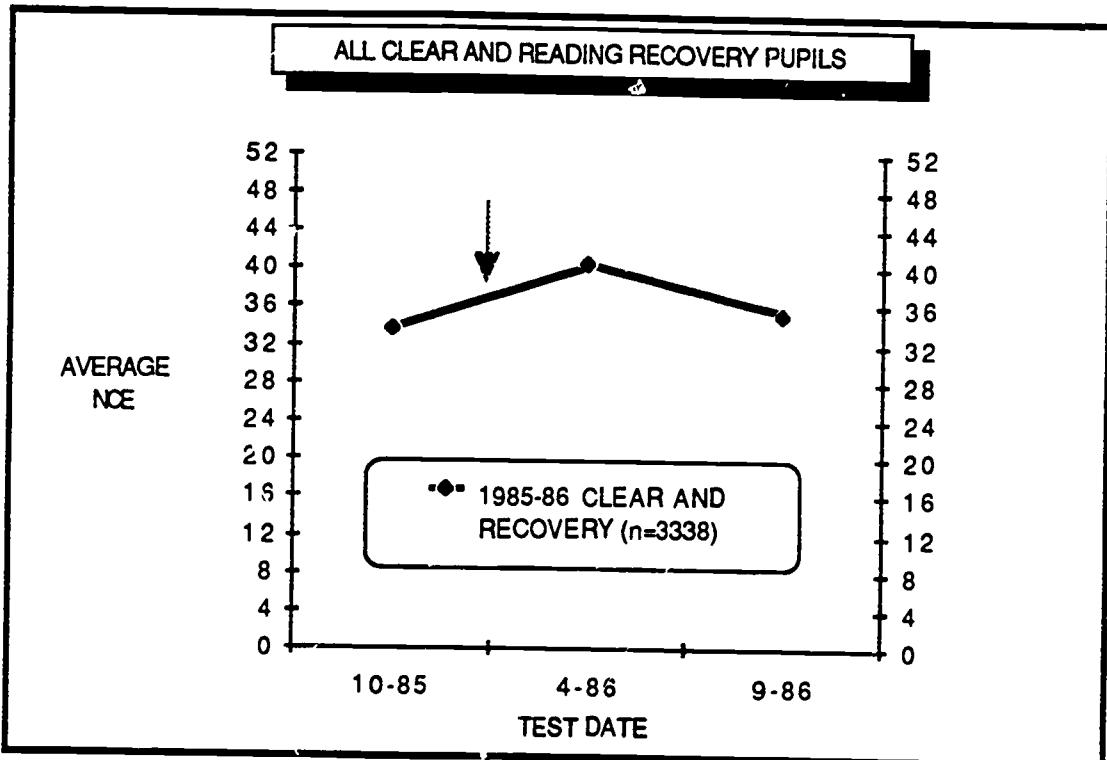


Figure 8a. A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for seventh-graders in the 1985-86 Chapter 1 CLEAR program.

For the subsample of seventh-graders in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 6.4 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 7.3 points (the 124 pupils not receiving 1986-87 CLEAR program service dropped 7.6, the 6 pupils served dropped 1.7 points). The average NCE gain from pretest to districtwide test was -0.9 (-0.8 for pupils not receiving 1986-87 CLEAR, -3.8 for those served). Of the 130 seventh-graders in the subsample, 23.1% (30) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 23.8% (31) of the 130 pupils in the subsample scored above the 36th percentile (25.0% [31] of the 124 pupils not receiving 1986-87 CLEAR program service, 0.0% [0] of the 6 served).



**Figure 9.** A comparison of the average pretest, posttest, and sustained effects NCE scores for all pupils in the 1985-86 Chapter 1 CLEAR and Reading Recovery programs.

The average pretest-posttest NCE gain for all pupils in the Chapter 1 CLEAR program was 6.5 points. When the sustained effects testing was done in September, 1986 the average NCE score dropped 5.3 points. The average NCE gain from pretest to sustained effects test was 1.2 points. Of the 3338 CLEAR pupils in the study, 36.2% (1134 pupils) maintained or exceeded their NCE level on the sustained effects test.

On the pretest 23.0% (767) of the 3338 in the Chapter 1 CLEAR program scored above the 36th percentile. On the posttest 36.0% (1203) scored above the 36th percentile and 25.5% (852) scored above on the sustained effects test.

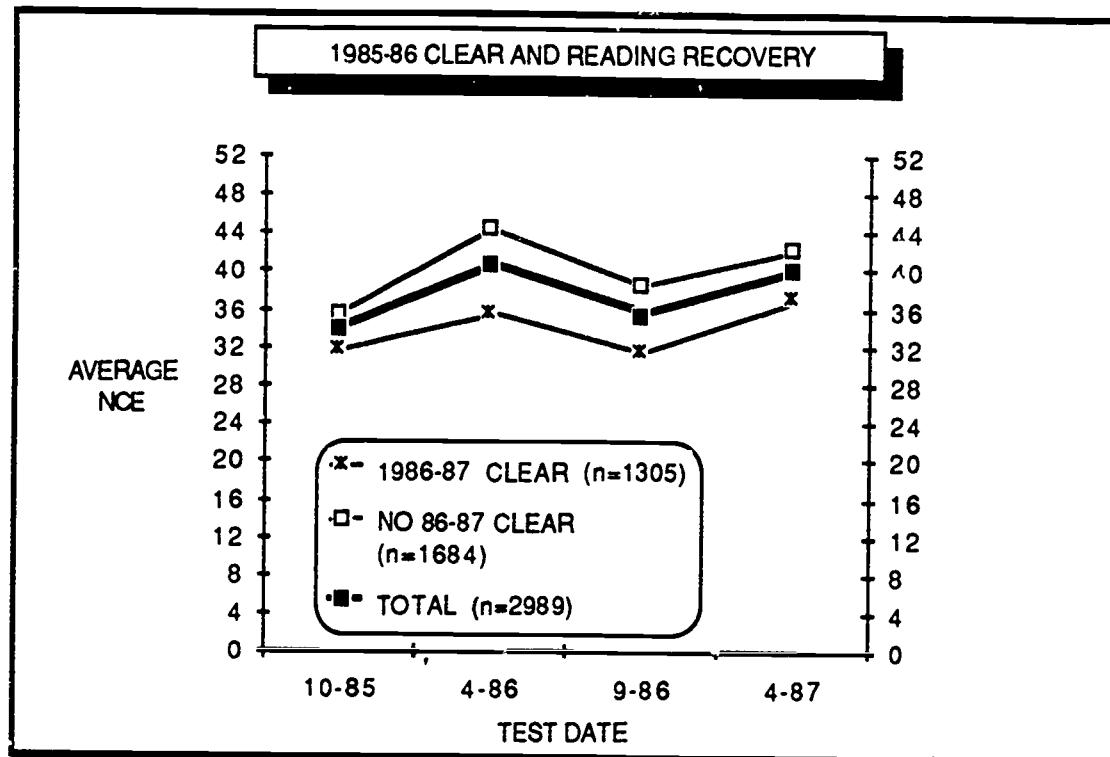


Figure 9a. A comparison of the average pretest, posttest, sustained effects, and districtwide NCE scores for pupils in the 1985-86 Chapter 1 CLEAR and Reading Recovery programs.

For the subsample of pupils in the 1985-86 Chapter 1 CLEAR program having a fourth (districtwide) test score, the average pretest-posttest NCE gain was 6.7 points. When the districtwide testing was done in April, 1987 the average NCE score dropped 0.6 points (the 1684 pupils not receiving 1986-87 CLEAR program service dropped 2.1, the 1305 pupils served gained 1.3 points). The average NCE gain from pretest to districtwide test was 6.1 (6.8 for pupils not receiving 1986-87 CLEAR, 5.1 for those served). Of the 2989 pupils in the subsample, 47.9% (1432) maintained or exceeded their posttest NCE level on the districtwide test.

On the districtwide test 37.9% (1134) of the 2989 pupils in the subsample scored above the 36th percentile (41.4% [799] of the 1684 pupils not receiving 1986-87 CLEAR program service, 25.7% [335] of the 1305 served).

Table 3

NCE Means and Standard Deviations  
in Reading for Pupils in Each of  
Three Testing Periods

1985-86 Grade/ Treatment	N	Pretest (10-85) Avg.	(SD)	Posttest (4-86) Avg.	(SD)	Sustained Effects Test (9/86) Avg.	(SD)
1 CLEAR Recovery	55 93	44.2 31.1	(13.9) (15.7)	46.1 41.1	(12.3) (14.6)	42.0 36.3	(13.3) (11.9)
2 CLEAR	630	33.2	(10.2)	43.1	(18.4)	35.1	(14.9)
3 CLEAR	667	31.7	(13.8)	41.3	(11.4)	34.7	(14.3)
4 CLEAR	688	36.1	(14.1)	40.8	(13.1)	36.1	(12.1)
5 CLEAR	597	33.7	(10.5)	36.7	(9.4)	32.2	(13.0)
6 CLEAR	460	32.0	(11.9)	36.4	(10.7)	35.4	(11.0)
7 CLEAR	148	35.6	(10.4)	42.0	(11.6)	34.4	(12.3)
Total	3338	33.6	(12.5)	40.2	(13.3)	34.9	(13.3)

Table 3a

NCE Means and Standard Deviations  
in Reading for Pupils in Each of  
Four Testing Periods

1985-86 Grade/ Treatment	N	Pretest (10-85)		Posttest (4-86)		Sustained Effects Test (9-86) Avg. (SD)	Districtwide Test (4-87)			
							1986-87 CLEAR Service			
		Avg.	(SD)	Avg.	(SD)		N	Avg.	(SD)	
1 CLEAR Recovery	42	43.8	(14.7)	45.5	(12.2)	41.5 (13.2)	22	37.6 (19.8)	20 49.3 (15.3) 42 43.1 (18.5)	
	58	31.0	(17.7)	43.2	(13.8)	37.5 (13.0)	5	36.2 (11.5)	53 38.8 (21.6) 58 38.5 (20.9)	
2 CLEAR	578	33.2	(10.3)	44.0	(18.3)	35.6 (14.5)	193	38.7 (11.3)	385 43.9 (11.5) 578 42.1 (11.7)	
3 CLEAR	591	32.2	(13.7)	42.0	(10.9)	35.6 (14.2)	346	39.2 (13.9)	245 46.6 (14.2) 591 42.3 (14.5)	
4 CLEAR	642	36.4	(14.1)	41.0	(13.0)	36.3 (12.2)	363	36.6 (9.6)	279 42.4 (10.4) 642 39.1 (10.4)	
5 CLEAR	534	33.9	(10.5)	36.9	(9.5)	32.6 (12.7)	293	32.8 (9.8)	241 39.4 (11.3) 534 35.8 (11.0)	
6 CLEAR	414	32.0	(11.9)	36.5	(10.5)	35.7 (11.1)	77	39.0 (9.2)	337 42.5 (11.8) 414 41.9 (11.4)	
7 CLEAR	130	35.5	(10.7)	41.9	(11.2)	34.3 (12.3)	6	33.5 (7.3)	124 34.6 (13.0) 130 34.6 (12.8)	
Total	2989	33.9	(12.5)	40.6	(13.2)	35.3 (13.1)	1305	36.9 (11.6)	1684 42.3 (12.7) 2989 40.0 (12.6)	

Table 4

**Percent of Pupils Who Scored  
Above the 36th Percentile in  
Reading for Each of Three  
Testing Periods**

<b>1985-86 Grade/ Treatment</b>	<b>N</b>	<b>Pretest (10-85)</b>	<b>Posttest (4-86)</b>	<b>Sustained Effects Test (9-86)</b>
1 CLEAR Recovery	55 93	52.7% 24.7%	58.2% 50.5%	49.1% 24.7%
2 CLEAR	630	19.2%	46.2%	27.6%
3 CLEAR	667	21.6%	40.5%	28.6%
4 CLEAR	688	31.4%	40.0%	28.3%
5 CLEAR	597	21.4%	21.1%	16.6%
6 CLEAR	460	14.8%	20.4%	23.0%
7 CLEAR	148	25.7%	45.9%	25.0%
<b>Total</b>	<b>3338</b>	<b>23.0%</b>	<b>36.0%</b>	<b>25.5%</b>

Table 4a

**Percent of Pupils Who Scored  
Above the 36th Percentile in  
Reading for Each of Four  
Testing Periods**

1985-86 Grade/ Treatment	N	Pretest (10-85)	Posttest (4-86)	Sustained Effects Test (9-86)	Districtwide Test (4-87)				Total (N)	% Total
					1986-87 CLEAR (N)	% 1986-87 CLEAR	No 86-87 CLEAR (N)	% No 86-87 CLEAR		
1 CLEAR Recovery	42	54.8%	54.8%	47.6%	22	36.4%	20	70.0%	42	52.4%
	58	29.3%	51.7%	27.6%	5	40.0%	53	45.3%	58	44.8%
2 CLEAR	578	19.2%	48.3%	28.5%	193	28.5%	385	50.4%	578	43.1%
3 CLEAR	591	22.2%	42.1%	30.8%	346	34.4%	245	63.7%	591	46.5%
4 CLEAR	642	31.8%	40.0%	28.7%	363	22.0%	279	43.0%	642	31.2%
5 CLEAR	534	21.9%	21.7%	17.0%	293	15.7%	241	39.4%	534	26.4%
6 CLEAR	414	15.5%	21.0%	24.4%	77	32.5%	337	49.0%	414	45.9%
7 CLEAR	130	26.2%	44.6%	25.4%	6	0.0%	124	25.0%	130	23.8%
Total	2989	23.5%	36.8%	26.5%	1305	25.7%	1684	47.4%	2989	37.9%

Table 5

**Summary of NCE Average Changes  
and The Percent of Pupils Who  
Maintained Their Achievement Level  
(Three Testing Periods)**

1985-86 Grade/Treatment	N	NCE Change			Maintained Posttest (4-86) NCE Level by (9-86)
		Pretest (10-85) to Posttest (4-86)	Posttest (4-86) to Sustained Effects (9-86)	Pretest (10-85) to Sustained Effects (9-86)	
1 CLEAR Recovery	55 93	1.9 10.0	-4.1 -4.7	-2.2 5.3	40.0% 38.7%
2 CLEAR	630	9.9	-8.0	1.9	32.4%
3 CLEAR	667	9.7	-6.6	3.1	34.5%
4 CLEAR	688	4.7	-4.7	0.0	34.6%
5 CLEAR	597	3.0	-4.5	-1.5	35.8%
6 CLEAR	460	4.4	-1.0	3.4	49.8%
7 CLEAR	148	6.4	-7.6	-1.2	25.0%
Total	3338	6.5	-5.3	1.2	36.2%

Table 5a

Summary of NCE Average Changes  
and Percent of Pupils Who  
Maintained Their Achievement Level  
(Four Testing Periods)

1985-86 Grade/ Treatment	NCE Change												Maintained Posttest (4-86) NCE Level by (4-87)											
	Pretest(10-85) to Posttest(4-86)			Posttest(4-86) to Districtwide Test(4-87)						Pretest(10-85) to Districtwide Test(4-87)														
	1986-87		No 1986-87	1986-87		No 86-87	1986-87		No 86-87	1986-87		No 86-87	1986-87		No 86-87									
	N	Avg.		N	Avg.		N	Avg.		N	Avg.		N	Avg.										
1 CLEAR Recovery	42	1.7		22	-1.8		20	-3.1		42	-2.4		22	-3.1		20	2.0		42	-0.7		40.9%	40.0%	40.5%
	58	12.2		5	8.8		53	-5.9		58	-4.6		5	21.0		53	6.2		58	7.5		80.0%	39.6%	43.1%
2 CLEAR	578	10.7		193	4.1		385	-4.8		578	-1.8		193	6.3		385	10.2		578	8.9		67.9%	37.7%	47.8%
3 CLEAR	591	9.8		346	1.3		245	-1.0		591	0.3		346	10.0		245	10.2		591	10.1		57.2%	43.7%	51.6%
4 CLEAR	642	4.5		363	-0.2		279	-4.1		642	-1.9		363	2.3		279	3.1		642	2.7		47.7%	32.3%	41.0%
5 CLEAR	534	3.0		293	-0.1		241	-2.4		534	-1.2		293	2.0		241	1.7		534	1.9		44.7%	37.8%	41.6%
6 CLEAR	414	4.5		77	7.2		337	4.9		414	5.3		77	7.5		337	10.3		414	9.8		75.3%	70.0%	71.0%
7 CLEAR	130	6.4		6	-1.7		124	-7.6		130	-7.3		6	-3.8		24	-0.8		130	-0.9		66.7%	21.0%	23.1%
Total	2989	6.7		1305	1.3		1684	-2.1		2989	-0.6		1305	5.1		1684	6.8		2989	6.1		54.3%	43.0%	47.9%

### Discussion

The first grade Reading Recovery, second grade CLEAR, and third grade CLEAR pupils demonstrated the largest pretest to posttest gains, an average treatment effect of approximately 10 points. By September, 1986, the time of sustained effects testing, first grade Reading Recovery pupils showed, on average, the largest sustained gain for all grade levels, a gain of 5.3 NCE points. Sixth-, third-, and second-grades had respectively 3.4, 3.1, and 1.9 average NCE gains for October, 1985 to September, 1986. Nearly half (49.8%) of the sixth grade pupils maintained or exceeded their posttest level on the sustained effects test, whereas 38.7% of first grade Recovery, 34.5% of third grade, and 32.4% of second grade pupils did so (see Table 5).

Looking further, to April, 1987, sizable average NCE gains from the October, 1985 pretest to the districtwide test are observed for four grade levels: 10.1 for third grade, 9.8 for sixth, 8.9 for second, and 7.5 for first grade Reading Recovery. Seventy-one percent (71.0%) of the sixth grade students maintained or exceeded their posttest level on the districtwide test. At third grade 51.6%, second grade 47.8%, and first grade Recovery 43.1% did so (see Table 5a).

Some differential gain is noted for the students who were served by CLEAR the following 1986-87 school year and those who were not. This is expected in that Chapter 1 CLEAR services are targeted to pupils who are not achieving well in reading (see Amorose et.al [1986] for a detailed discussion of multiple year Chapter 1 CLEAR service patterns and reading achievement over a five-year period).

Comparing the overall NCE data with the 1983-84 study, a much larger decline from spring to fall was noted in the 1985-86 data. Specifically the 1982-83 study indicated a greater "pre-post" gain and then a smaller "post-sustained" decline than Figure 9 of the current study. An inspection of the 1985-86 data reveals that first grade and fifth grade CLEAR pupils scored higher on the pretest and did not produce the gains observed in 1982-83. Further inspection reveals that grades 6, 3, and 2 produced sustained gains higher than the other grades' gains - similar to the 1982-83 performance. However, grades 2, 3, and 7 showed greater decline from posttest to sustained effects test.

### Summary

In accordance with the Chapter 1 Federal guidelines the Columbus Public Schools completed the sustained effects study. The results of this study will be used in planning Chapter 1 programs.

The sustained effects design included a fall-spring-fall testing schedule with an additional spring test for a subsample of pupils. In the 1985-86 Chapter 1 CLEAR and Reading Recovery programs 3338 pupils were in the evaluation sustained effects group, 2989 in the subsample. Those pupils took each of the 3 or 4 scheduled tests, met the 80 percent attendance criterion of instructional days, and were promoted to the next grade level.

The results of the sustained effects study indicate some decline in all grade levels in reading during the summer months, with sixth grade having the smallest decline. The greatest net gains from Fall 1985 to Fall 1986 were noted for first grade Reading Recovery, and 2nd, 3rd, and 6th grade CLEAR. Pupils from these grade levels then substantially improved their Fall 1986 achievement levels by Spring 1987.

References

Amorose, R., Brown, R., Duffy, J., Morgan, K., and Thompson, G. Analysis of School District Records to Study the Effectiveness of Chapter 1 Programs and to Conduct a Longitudinal Study of Students Involved in Chapter 1 Over a Five Year Period. Columbus, Ohio: Columbus Public Schools, 1986.

Brown, R., and Duffy. J. Report of the Chapter 1 Sustained Effects Study. Report Date: March, 1984. Columbus, Ohio: Columbus Public Schools, 1984.

Chamberlain, E., and Lore, R. Final Evaluation Report Language Development Component Compensatory Language Experiences and Reading Program. Columbus, Ohio: Columbus Public Schools, 1986.

CTB/McGraw-Hill Staffwriters. Comprehensive Tests of Basic Skills. Monterey, California: CTB/McGraw-Hill, 1981.